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The title page features a decorative border with red and gold patterns, including a sunburst at the top, a circular medallion on the left, and a floral emblem on the right. The title 'THE JOURNALS OF MURRAY.' is written in large, bold, black Gothic script, with 'OF MURRAY.' on one line and 'THE JOURNALS' on the next. A horizontal line with a decorative flourish separates the title from the author's name.

THE
JOURNALS
OF MURRAY.



LURRY VA





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Book P2 A45

THE CAVERNS OF LURAY:

AN ILLUSTRATED GUIDE-BOOK TO
THE CAVERNS,

EXPLAINING

THE MANNER OF THEIR FORMATION,
THEIR PECULIAR GROWTHS,
THEIR GEOLOGY, CHEMISTRY, &c.

BY

S. Z. AMMEN, A. M.

FIFTH EDITION.



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THE CAVERNS OF LURAY.

"All are but parts of one stupendous whole."—*Pope*.

ITS HISTORY AND SURROUNDINGS.

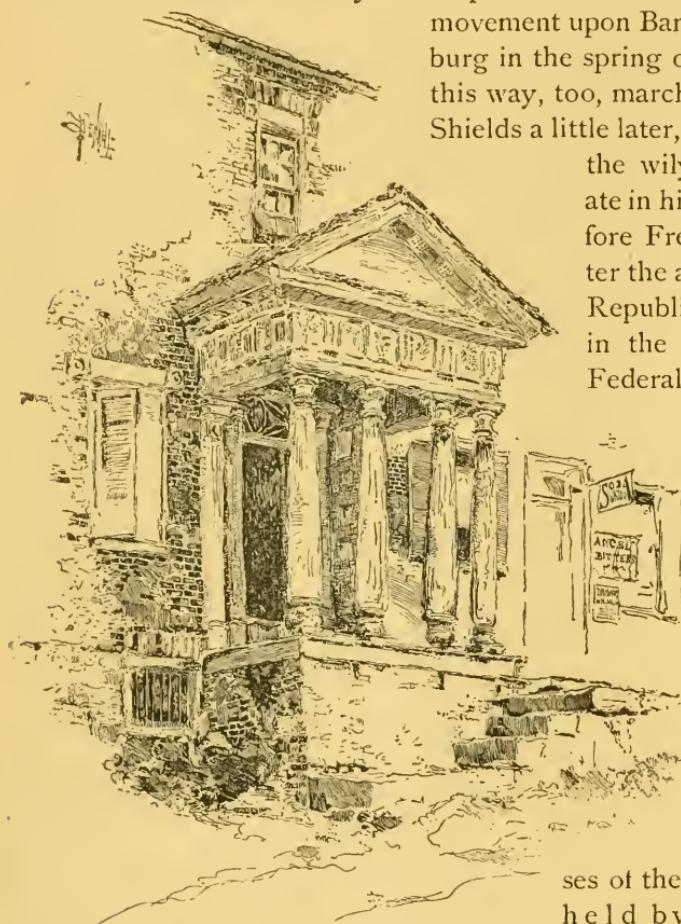
THE GREAT VALLEY OF VIRGINIA lies between two elevated ranges—the Blue Ridge on the south-east rising to heights of from 2,000 to 4,000 feet above tide-level, and the North Mountain range on the north-west almost equally high. It is not a continuous plain like some of the Western prairies. On the contrary it is of varied surface, a land of hill and dale, well-watered, fertile, and abounding in every variety of mineral and agricultural wealth. Nor is it a single valley throughout. From a few miles south-west of Winchester to a point nearly opposite Harrisonburg it is divided into two subordinate valleys by the Massanutton Mountain—a long belt of ridges of silurian and devonian rocks which withstood the denuding agencies that cleared away on either side so many hundreds of square miles of strata.

Both valleys are proverbial for their beauty and famous for important historical events, of which each has been the scene, but our present concern is with the eastern and narrower one, the Luray valley. This constitutes Page county, of which Luray is the county seat. For the lover of the beautiful in nature it is endowed with innumerable charms. Hemmed in on every side with a rim of blue mountains, it is traversed in its western part by the South Branch of the Shenandoah, a beautiful river known in many a story of battle and guerilla adventure during the civil war. It was upon its banks at Front Royal, near its junction with the North Branch, that the first battle of Jackson's cele-

brated Valley campaign was fought. The Hawksbill, a winding and picturesque stream, flows through the centre of the valley, alternating along its upper course with wild mountain cascades and bits of bosky dell, until at length, after watering miles of fertile meadow, it passes beneath the rustic bridge at Luray and loses itself in the Shenandoah.

Nor is the village of Luray unknown to fame. It was through its streets that Stonewall Jackson passed in making his flank

movement upon Banks at Strasburg in the spring of 1862. By this way, too, marched General Shields a little later, to intercept the wily Confederate in his retreat before Fremont. After the affair at Port Republic, Luray lay in the line of the Federal general's retreat. Again, in July, 1863, Lee's army returning from Gettysburg to Eastern Virginia, and finding the lower passes of the Blue Ridge held by Meade's troops, came this far

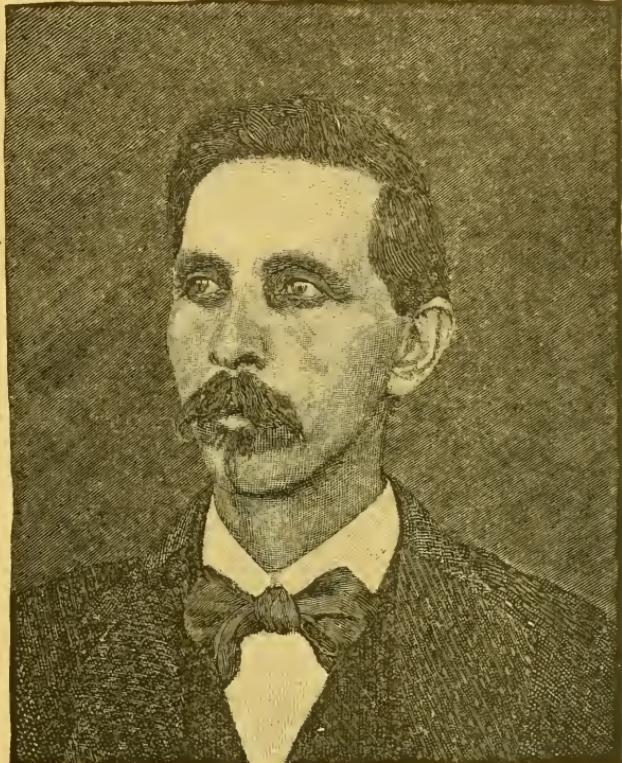


up the valley to gain Thornton's Gap, and crossing here, once more confronted its old adversary. Then, as now, the village was famous for its pretty girls and abundant rations, to both of which soldiers are ever devoted, and it became in consequence

ON THE MAIN STREET.

the scene of many exploits of the partisan soldiery of Harry Gilmore, White, McNeil, and Mosby—gay fellows who knowing well the charms of the place were loth to yield possession.

About a mile west of Luray on the Newmarket pike, is a conical hill known as Cave Hill from the existence of a cave near its summit. Along its sides and about its base are standing ponds, and sink-holes, marked with a growth of briar and weeds, known to vagrant boys as the favorite haunts of rabbits. Their more important significance was not understood, however, until there appeared in the county a photographer, Mr. B. P. Stebbins, of Easton, Md., who induced several of the villagers to join him in the search for a cave which, from surface



ANDREW J. CAMPBELL.*

indications, he felt sure must exist in the neighborhood. His companions in this memorable cave hunt were Messrs. A. J. and William B. Campbell. Together they went prospecting about the country, digging here and there at promising localities but without success, until, being nick-named "cave-hunters," they became the objects of good-natured ridicule from their fellow

* The first person to enter the Cave. He and his nephew, William B. Campbell, still attend the visitor at the Caverns.

townsmen who charged them with mistaking rabbits' hiding places for mares' nests, and jumping rabbits for sprightly young colts.

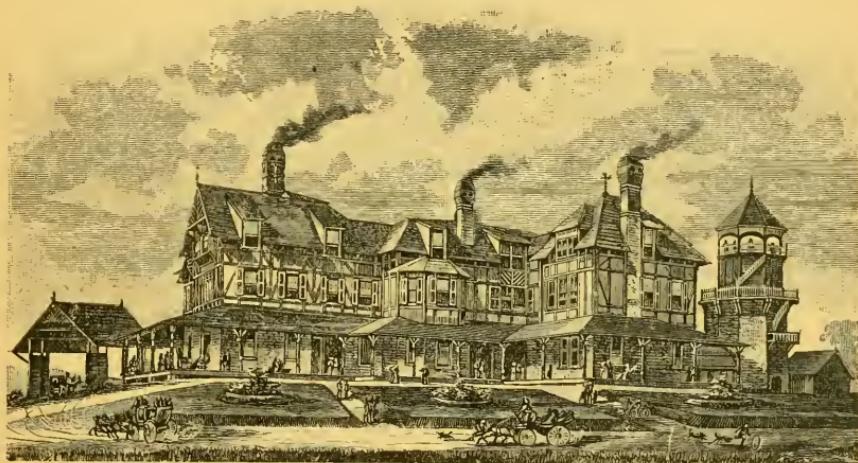
At length on the 13th of August, 1878, a depression on the hillside was examined, which proved to be the entrance to the long-sought cave. It was about forty feet in diameter by ten in depth, filled with loose stones and brush, and grown up with weeds. Removing these obstructions with considerable labor, they found an opening from which a current of air was escaping. The opening was further widened and Mr. A. J. Campbell was lowered by means of a rope, and reaching bottom with candle in hand, peered about him in the darkness. He found himself in a narrow rift about fifteen feet long by five wide, with no apparent outlet. Closer examination disclosed a hole through which with some difficulty he passed into a large open space now known as Entrance Hall—and became the discoverer of the cave. Having abandoned the rope which connected him with his companions, he surveyed for some time with rapt interest the strange scene presented to his eyes, until—the rest of the party becoming alarmed at his absence—his nephew William B. Campbell came in search of him. Together they returned to the upper world, and the exploration ceased for the time. The importance of their discovery was appreciated, and at night the party returned with candles and explored Stebbins' avenue, Entrance Hall, and Entrance avenue as far as Muddy lake, since drained and replaced by a dry, cement walk. The Lake—then a considerable body of water—stopped them, and of the largest and grandest part of the cave they remained in ignorance, until, on a venture, they had purchased the land under which it lay.

Since its opening, the cave has been visited by many thousands* of persons representing all parts of the world, many of them scientists and foreign tourists acquainted with the caves of this and other countries. The general verdict is that the Luray Cave excels all others in the combined extent, variety, scientific interest, and beauty of its calcite formations. The Mammoth and Wyandotte caves are indeed larger, but their walls are almost bare. Weyer's is admittedly inferior in the freshness, va-

* As many as 14,365 persons have visited the caverns in a twelvemonth. The records show that 1468 visitors entered the Caverns *in one day*.

in the hand. Darkness, however, is such a charm of the place that we hardly sympathize with the old lady (perhaps a Mrs. Partington) who after visiting the caverns at night declared her intention to go the next time during daylight, so as to see better.

Guides—among them Mr. A. J. Campbell, the first person to enter the cave—are in waiting to attend the visitor, and during regular hours no charge is made for either lights or guides. Carriages await the arrival of every train to carry intending explorers to the cave which is distant about one mile from the station.* No change of dress is needed, as some



LURAY INN.

suppose, on entering the realm of Stalacta. There is little or no dripping water where the visitor will care to go, and the walks, as said before, are made dry and safe by artificial means. It is not necessary to imitate either the lady who took a trunk to the cave house with changes of attire, or the other who made the tour of the caverns in an elaborate velvet dress and train. Plain clothing and stout shoes alone are needed. Ladies should wear overshoes, but sticks, canes, &c., are needless and wraps

* Round-trip tickets, good for the ride to the Cave in the cave hacks, are sold at the station. All railroads sell tickets with coupons attached allowing the traveler to stop over at Luray one day.

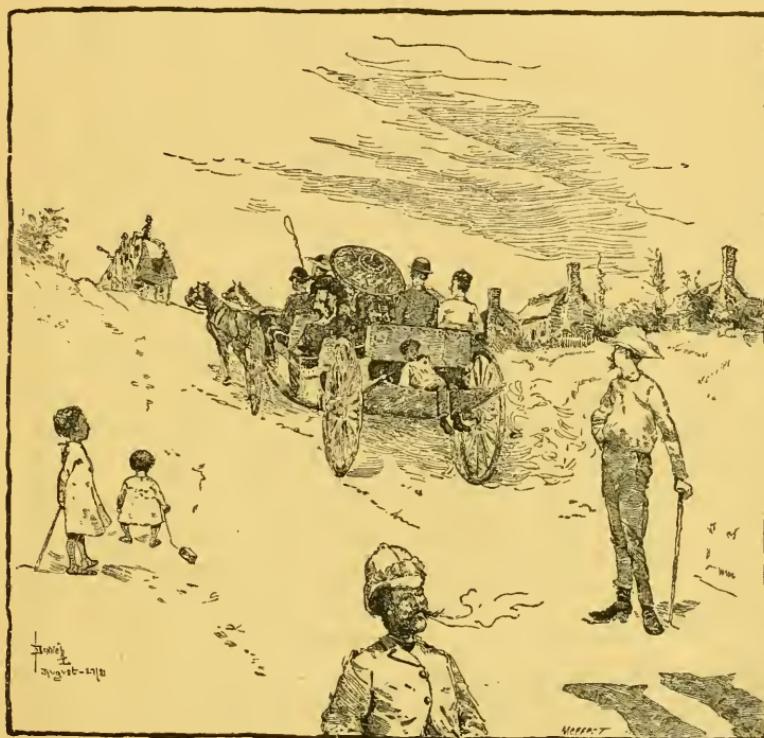
are superfluous in an atmosphere never lower than fifty-four degrees nor more than fifty-eight degrees summer or winter.

It may not be amiss to add that the laws of Virginia impose a fine of from five to five hundred dollars for defacing or despoiling private property, and the guides have positive orders to arrest every person known to have broken off or carried away specimens. The law has occasionally been violated and fines have been imposed by the local magistracy, who feel a strong interest in keeping the cave formations intact.

The Luray Inn, built by the Luray Cave and Hotel Company in Queen Anne style, is near the railroad station, and serves either as a temporary stopping place for hurried visitors to the cave, or as a resort for persons wishing a healthy and romantic spot in which to spend the summer. The Inn has fifty-four sleeping rooms, all provided with gas and electric bells. Hot and cold water baths and other comforts or necessaries are liberally supplied. There is a tower crowning the Inn from which may be obtained a fine view of the glorious scenery of the Hawksbill valley. One sun-set scene from this point is worth a trip across the Atlantic. That this is the case may be inferred from a letter written by a gentleman spending his summer here. In reply to a question as to his resources for enjoyment, he thus expressed himself:

"To lie on a grassy hillside and watch the sun setting behind the Massanutton ; to see the thousand purplish tints that sleep within its winding valleys and glens, while the heavens above are glowing with splendors of pink, and red, and gold, amber, faintish-blue and green ; to hear the cries and calls of eventide, the shouts of the workmen coming home, and the multitudinous noises of the farm house at the close of the day,—these are no small pleasures. There are cherry-trees to climb, berries to gather, ferns to collect, a cave to explore, fish to catch, and long walks to take in the deep forest, or by the riverside, or down some rustic, vine-bordered lane. To sit on the farm-house porch and see the corn growing, and listen to the busy threshing machines buzzing fitfully far away across the hot fields throughout the idle, dreamy day—unhappy the man that cannot find a certain charm in these things. They awake a dim echo in our souls of the rustic lives of our ancestors. We find in them the pabulum of our highest emotions, inspiration for better living, and nobler thinking. City life tires, deadens, exhausts. We become one-sided, evil, set in bad habits, which the necessities of country life effectually break up. We return to town in the autumn with increased physical, mental, and moral strength to renew and accomplish the tasks of life."

Luray is a good central point from which the historiographer may visit the numerous battlefields of the Valley and Piedmont region of Virginia. Within a few miles are Kernstown, Front Royal, Winchester, Strasburg, New Market, Cedar Creek, Cross Keys, and Port Republic. Charlestown, the scene of John Brown's trial and execution, is in easy reach. There are several interesting mounds, built perhaps by the famous mound-



GOING TO THE CAVERNS.

builders, within two or three miles of Luray. For several years representatives of the Smithsonian Institution have been engaged in examining them.

Luray is within easy reach of Raleigh, Capon and Jordan White Sulphur Springs, and is on the direct line from northern cities to the famous Greenbrier White Sulphur, Old Sweet, Red Sweet, Warm Springs, and other prominent Virginia watering-places, and the wonderful Natural Bridge of Virginia.

A CHAPTER OF EXPLANATION.

Scopulis pendentibus antrum:
Intus aquæ dulces, vivoque sedilia saxo.

Geologically, the limestone (dolomite) in which the cave is found, is to be assigned to the "Canadian" or Middle Period of the Lower Silurian, and to the "Quebec," the Middle Epoch of that period—to No. II., b., of Rogers' series.

The stratum* of argillaceous limestone constituting Cave Hill may be considered identical with that in which occurs the famous Natural Bridge of Rockbridge county, near Natural Bridge Station, Shenandoah Valley R. R., further up the valley. Such is the opinion of Prof. John Campbell, of Washington and Lee University, who has made a minute study of this region, and is recognized as the highest living authority upon the geology of the Valley of Virginia.

Large caves are found only in limestone regions. Those who give the subject special study agree that a cave is but an underground valley—a ravine roofed with stone—a repetition on a small scale and under a stony sky, of the main features of limestone scenery above ground. This view is well sustained by the structure of the Luray Cave. It is a system of large ravines, of which (1.) Entrance and Stonewall Avenue, (2.) Pluto's Chasm, and (3.) Giants' Hall and its dependencies, are the dominating lines. It is one thing, however, to have subterranean ravines, and quite another to have them richly decorated with beautiful formations. The former are common the world over; the latter are rare by reason of the many conditions to be fulfilled. The hill in which the cave is situated is the highest in the vicinity, and the cave is near its summit. The strata are horizontal, compact, homogeneous, and almost water-tight. Had the Cave Hill been subject to the rain torrents flowing from higher hills and had its strata been inclined, water would have flowed through any chance opening too fast to have produced effects other than those due to mere erosion. As it is, the water which enters the cave seems to exude from the very stone itself, as if it had under pressure traversed the whole thickness of limestone overhead.

* Prof. Campbell considers this stratum much older than the Trenton strata, a well-marked epoch intervening.

Caves result from the chemical fact that the carbonates of lime and magnesia are soluble in water containing carbonic acid. This acid abounds in atmospheric air and is one of the products of the decomposition of animal and vegetable matters, so that rain water which has percolated through the soil has usually been enriched with it from both sources. With carbonic acid, then, as the active agent and water as the carrier, we are able to account for the disappearance of strata, however thick, and whether above or below ground. Above ground, the result is a lowering of the general level, the deposition of a residual stratum of clay (a constituent in a finely divided condition, of the valley limestone), and the formation of valleys where special causes have favored the disintegration of the stone. "Hard" water flows away; and a clay soil is left behind. Below ground, on the other hand, the result is a cave—if there be a fissure in the strata through which the acidified water may make its descent. In the course of time this fissure is worn larger, and the entering water dissolves and bears away with it bit by bit the stratum through which it passes, flowing out at some lower level with its burden of lime and magnesia, but leaving the clay behind to plague the adventurous cave-hunter. A cave therefore is a fissure widened by the combined action of carbonic acid and water.

So much for the solution and removal of strata. It remains to account for the new formations, which, under the names stalactite, stalagmite, drapery, &c., are peculiar to cave scenery. Some caves have them; some have not. They demand certain conditions of comparative dryness and ventilation which are seldom realized. The chemist knows that water holding lime in solution by virtue of the carbonic acid it contains, will deposit the lime when the acid escapes. It is obvious, moreover, that when water containing dissolved lime and magnesia is evaporated by a passing current of air, the solid matter will be left behind, and crystals small or large be formed, according as the evaporation is rapid or slow. The formation of a limestone coating at the bottom of a kettle in which "hard water" has been boiled is an analogous phenomenon.

FORMATIONS.—Cave formations when new, are white from the predominance in their composition of lime and magnesia. In the course of time, however, much of the soluble matter of their sur-

face is removed by the ever-present carbonic acid and moisture gathered from the cave atmosphere, and the residual clay and iron oxide accumulating on their exterior give it a darker color.

The formations at Luray are to be referred to the following types:

1. *Stalactite*.—It begins from a drop suspended from the ceiling. The carbonic acid escaping and the water evaporating, the drop becomes more concentrated at the surface than at the

pendent centre, and deposits the solid matter it contains as a ring of tiny crystals. This ring now becomes the support of the drop, and the process continues until a tube of the diameter of the drop and from one to thirty-six inches in length is formed. Before reaching this length, however, it begins commonly to fill up, and the water now trickling exteriorly deposits its solid matter and enlarges it. Stone cloth, "curtains," "swords," "draperies," &c., are its varieties. Hanging from the under surface of a jutting ledge, a stalactite receives its supply of stone-forming water on one side only and grows only on that side. Thus from being a round body it becomes a flat one. Extending horizontally as it broadens, it must chance to intersect the line of growth of similar adjacent formations, and where they meet there is a blending of substance and the semblance of a fold.

Stripes of various tints of red result from

varying proportions of carbonate of iron in the water which trickles down the growing edge. The stalactite assumes a thousand forms, and one of the chief pleasures of the visitor is to study and account for its wonderful vagaries.

2. *Stalagmite*.—Meanwhile a growth has been taking place below from the drops which have fallen upon the floor and there evaporated. The result is a solid column much larger than its

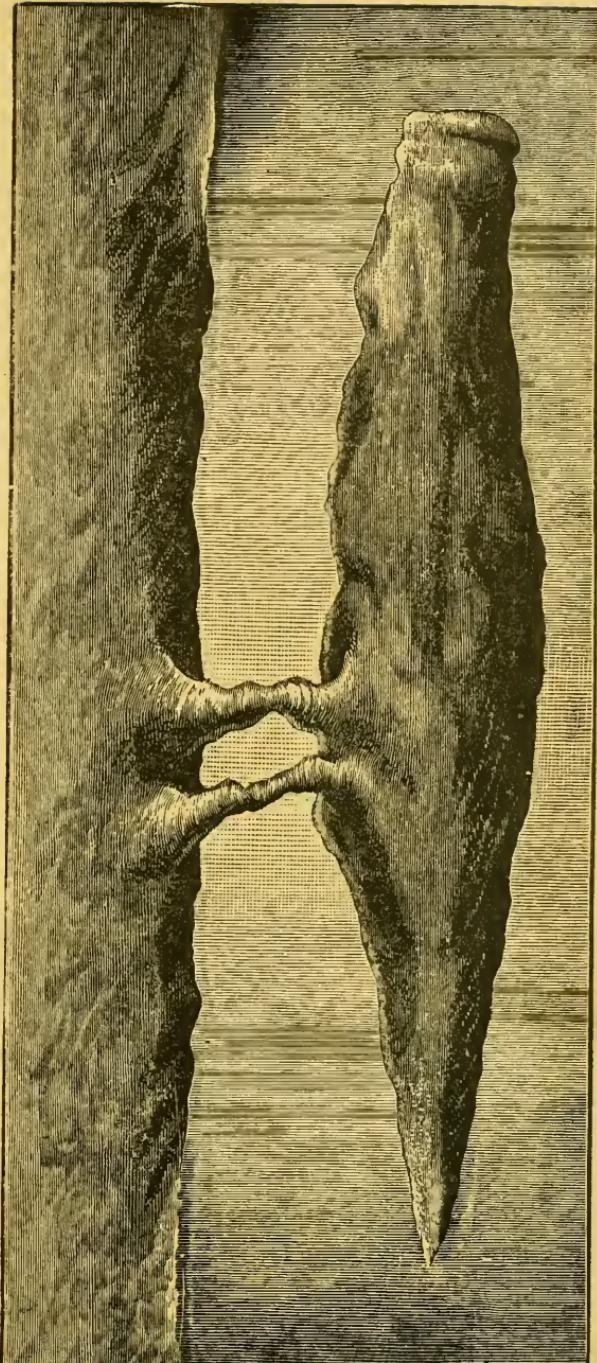


STALACTITES AND HELICTITES.

corresponding stalactite. Stalactite and stalagmite often meet in mid-air to form a pillar extending from floor to ceiling.

3. *Helictite*.—The Luray Cave produces a new and peculiar formation, neither stalactite nor stalagmite, for which is proposed the name *helictite* (Greek *heliasso*, to bend or twist), to indicate the contorted or broken line of growth which it affects. The helictite abandons the vertical line. It prefers to extend horizontally from one to three inches, until it can be free to move in any direction. It then often grows upward, seldom downward.

This eccentric formation is due to a slow crystal-



THE CONICAL SHOT.

A Combined *Helictite*, *Stalagmite*, and *Stalactite*.

lization taking place on a surface barely moist, from material conveyed to the point of growth by a capillary movement. The polar forces concerned in crystallization by a happy chance continually getting the better of gravitation, it departs from the vertical line to which cave growths are usually restricted.

4. *Calcite Crystals* are deposited in still water. They are abundant in the cave, forming the sides and bottom of its numerous "springs" and lakes, but should be distinguished from others found protruding from the blue limestone of the ceiling, the latter having been formed therein long before the period of the cave.

5. *Cave Pearls* are formed about pebbly nuclei in water agitated by falling drops. *Botryoids* result when adjacent masses of stone are besprinkled with fine spray. These grape-like bodies are fixed, and when old resemble "*vegetable growths*," but are smaller and have a different origin. The latter are found on old stalagmites disintegrating in a moist atmosphere. *Cascades* lie between stalactites and stalagmites, being formed when water trickles over an inclined plane of broad surface. No gypsum formations occur in the Luray Cave.

AGE.—It is impossible to estimate correctly the age of the cave, or of its formations. The cave is of course more recent than the hill in which it is formed—is later than the adjacent valleys and streams into which it drains. The rate of growth of cave formations varies with a score of circumstances, so that no generally applicable rule can be deduced. An unexpert estimate was as follows: On an excursion a lady inconsiderately broke off a pipe stem. The guide expostulated with her and explained how wrong it was to thus destroy the work of ages in a thoughtless moment. The repentant fair one exclaimed, "What a pity! I thought they grew over night." The writer, however, has seen a tumbler which, after standing five years under the drip of a stalactite, was incrusted to a depth of only one-eighth of an inch. At this rate of growth, supposing all the conditions to be exceptionally favorable, a column one foot in diameter might be formed in two hundred and forty years. Under ordinary circumstances, however, it would perhaps require several thousands, some reckoners say tens of thousands, of years. Others go further. Dr. Porter, of Lafayette College,

a distinguished scientist, in a recent lecture, quotes an eminent brother scientist as saying, concerning the Fallen Column, a gigantic formation weighing one hundred and seventy tons, that "four thousand years must have passed since its fall, and seven millions of years were consumed in its formation." This calculation is based upon the probable time which, in his opinion, it took to grow the vertical stalactites which have formed upon it as it lies. Prof. Collins, of New York City (of the "Jeannette" Polar Expedition), who visited the cave and looked at this column, declared all his preconceived ideas of time stranded. "I am not familiar," said he, "with the hypothesis upon which the calculations are based, but when the *savans* assert that it required seven millions of years to give this fallen column its present diameter, I feel like 'putting off my shoes' and standing on this sloppy stone, for it certainly must be 'holy ground.' "

THE DESCENT.

"In Xanadu did Kubla Khan
A stately pleasure-dome decree,
Where Alph, the sacred river, ran
Through caverns, measureless to man,
Down to a sunless sea."

A house has been built over the entrance for the convenience of visitors.* Within the cave are plank and cement walks, bridges, stairways, railings, &c., in all those parts at present open to the general visitor, so that no special preparation is needed except such as is suggested by the mention of the fact that the temperature of the cave atmosphere ranges from fifty-four to fifty-eight degrees. The thirteen electric lights suspended at important points relieve the visitor of the trouble of being his own torch-bearer. Still, if desired, the guide provides each person with a reflector armed with several candles.

At the word "Ready!" we take our places in single file, and following the guide observe in descending the stairway, that the thickness of the horizontal stratum of blue limestone constituting the roof of the cave is about thirty-five feet. A door is opened

* To enter the cave, the visitor descends a stairway within the house, precisely as if he were going down into a cellar. The Map shows his subsequent course.

and we are met by an outward draft of cool, fresh air. Advancing further, we find ourselves in Entrance Hall, the vestibule of the realms of Stalacta. Our first emotion at the abrupt change from the freedom of outside nature is one of mute wonder, until the mind accustoms itself to the monstrous shapes, the silence, and the weird influence of this subterranean world.

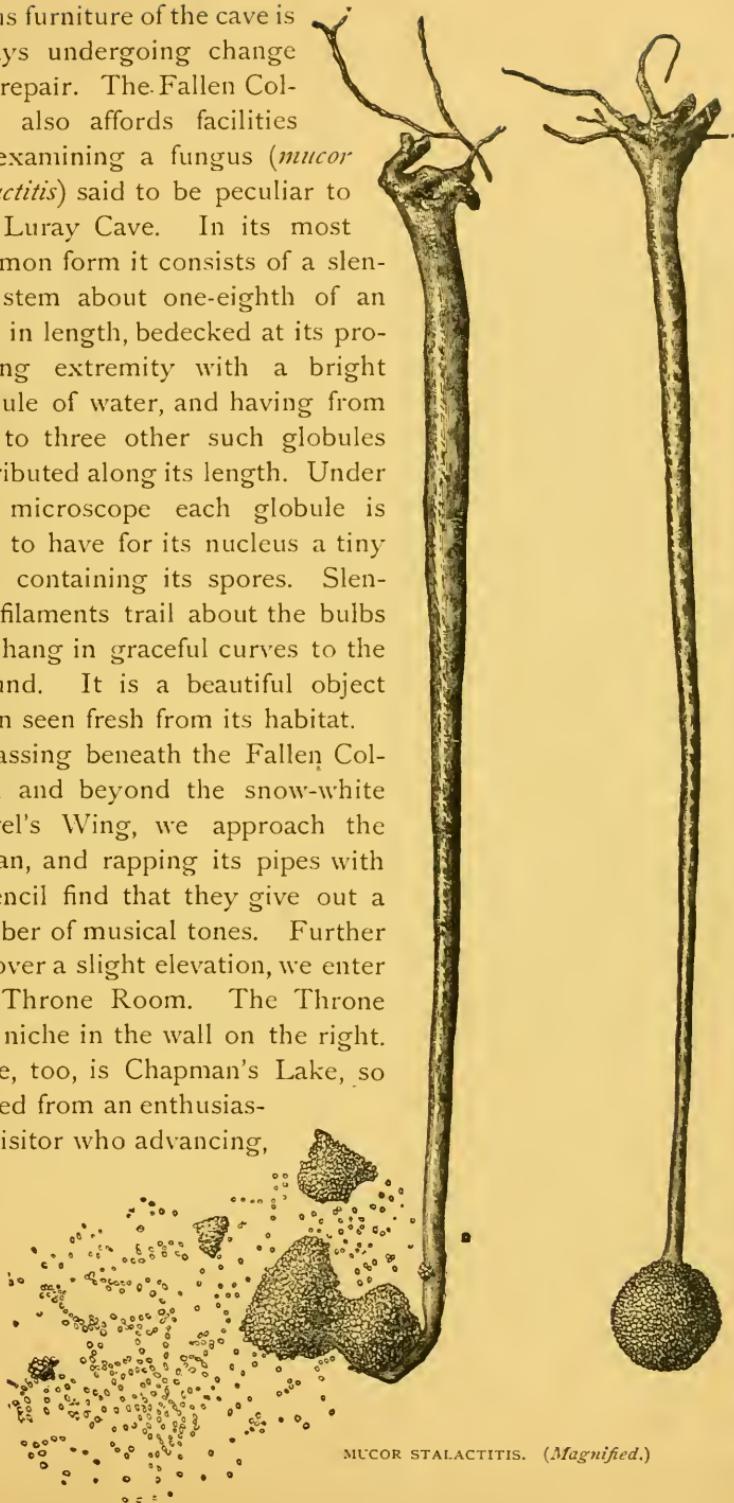
Our feeling is that we have entered a new state of being. Queer shapes present themselves at every turn, aping grotesquely the things of our past experience. Every object suggests some growth of animal or vegetable life, yet every resemblance proves illusive. Before us are glittering stalactites and fluted columns strong enough to bear a world; draperies in broad folds and a thousand tints; cascades of snow-white stone; and, beyond, a background of pitchy darkness in which the imagination locates more than the eye can see. The mind "dodges with belief." Fancy is dazed by the incomprehensible stimulus it receives from a multitude of novel forms. Around us is a silence that speaks. To what does it testify—the infinite inventiveness of chance? Not so. We see the mechanic spirits of this underworld, gnomes and imps, who dart from shadow to shadow, behind column and angle, to watch that we do no harm to their marvelous handiwork. Awe and reverence possess us. We are in a place, where, all for all, nothing has its fellow in the world above, and where everything is sacred and inviolable.

The different impressions made on two visitors are worthy to be recorded, and are related by one who entered the Caverns with Colonel Boteler, of West Virginia, on a recent occasion. This gifted gentleman was lost in wonder and awe. Clasping his hands in a reverential way, he exclaimed, "God must have made this." A few days after the same person was present with an Irish contractor in charge of a section of the road. The latter was struck dumb and bewildered by what he saw, and when asked for his impressions, burst out, "Be jabers, sur, this bates the Black Crook all hollow, jist."

Let us examine objects more closely under the glow of the overhanging electric light. First to attract attention is Washington's Column, a fluted, massive stalagmite about twenty feet in diameter by thirty in height, reaching from floor to ceiling. Stalactites depend on every side. From the centre of the roof

geous furniture of the cave is always undergoing change and repair. The Fallen Column also affords facilities for examining a fungus (*mucor stalactitis*) said to be peculiar to the Luray Cave. In its most common form it consists of a slender stem about one-eighth of an inch in length, bedecked at its projecting extremity with a bright globule of water, and having from one to three other such globules distributed along its length. Under the microscope each globule is seen to have for its nucleus a tiny bulb containing its spores. Slender filaments trail about the bulbs and hang in graceful curves to the ground. It is a beautiful object when seen fresh from its habitat.

Passing beneath the Fallen Column and beyond the snow-white Angel's Wing, we approach the Organ, and rapping its pipes with a pencil find that they give out a number of musical tones. Further on, over a slight elevation, we enter the Throne Room. The Throne is a niche in the wall on the right. Here, too, is Chapman's Lake, so named from an enthusiastic visitor who advancing,



MUCOR STALACTITIS. (*Magnified.*)

head up, candle elevated, examining the ceiling, suddenly plunged waist deep into this pool of icy water, extinguishing at once both candle and enthusiasm. From this point has been opened the way to the wonderful region of Hades, with its beautiful waters, Lake Lethe, and Lake Lee, but we shall defer our visit to it until toward the close of our explorations.

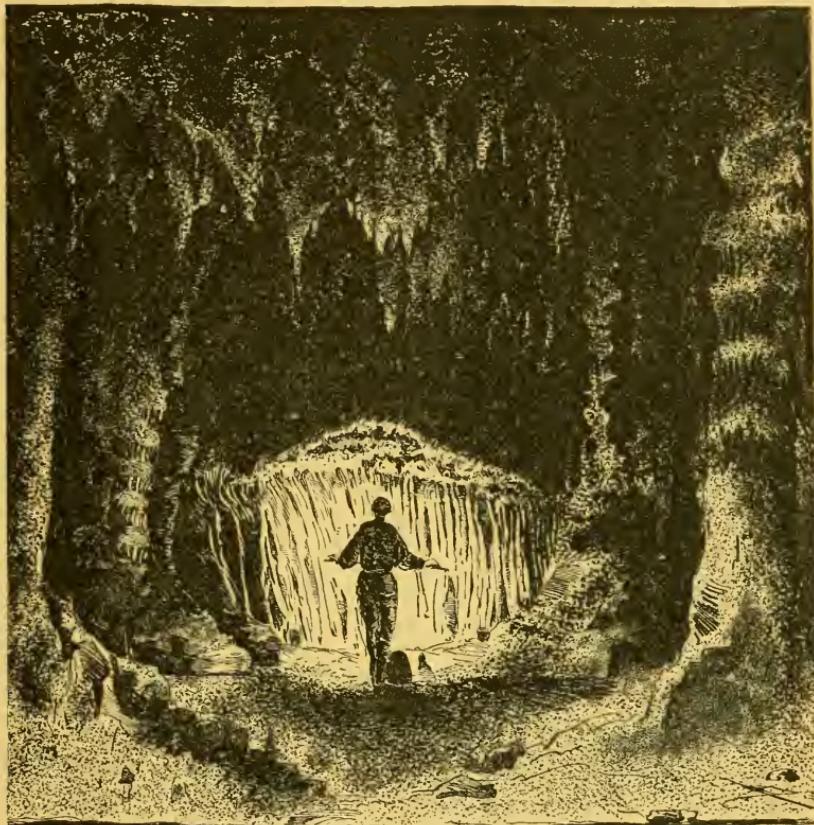
HADES.—There is perhaps no more attractive region of this underworld than that portion of it, which, from its beautiful lakes, brimming with limpid quiet waters suggestive of the calm of the world of spirits, has received the name of Hades. While it may be fairly considered the vestibule of a better world, the visitor will be reminded, however, by his guide that it is in close connection with Tartarus, to which at various points there are evident openings to be avoided by the wicked.

Passing from the Throne Room into a narrow rift in the solid rock, after a number of bewildering turns and windings, we enter the labyrinthine mazes of Hades. The first object to attract our attention is Lake Lee.* It is the largest body of water in the cave, and one of the prettiest. Calm, clear, still, it reflects in a wonderful manner the many stalactitic beauties that surround it. A beautiful white column rises from its edge to the ceiling. Within a few feet is the bed of an old lake, now empty and dry, whose sides terraced at different levels display every stage and incident of lake-growth. The curious tower-like stalagmites along its border, suggestive of castles, have secured for the lake the name of the river Rhine. The visitor must not fail to see the Chinese devotee. Adjacent to it and still more interesting is Lake Lethe, a body of water contained within raised banks of its own construction, and containing within its waters many novel growths resembling mushrooms in stone, exceedingly curious to the student of cave history. It has justified its name. A gentleman who, wandering here alone, took a drink of its limpid crystal, forgot his way out, and after many futile attempts to thread the mazes of Hades—each turn of which brought him back to Lake Lethe—was rescued by the guide after his candle had burned down to the last inch.

There are numerous rooms opening out from Lake Lethe

* Better known as Broaddus Lake.

which are particularly rich in helictites, and in stalactites of queer shape. A matter of interest in this locality is an abyss to which no bottom has yet been found. Mr. A. J. Campbell was once let down into it a distance of seventy-five feet, but without finding its lower limits. The visitor should observe caution in his movements, as he may be lost in the little-known



THE ORGAN.

windings of this part of the cave. The peculiar merit of Hades is its series of wonderful lakes, and the facilities it affords for observing the growth of formations submerged in water.

Retracing our steps to the lower end of the room containing the Organ, we find ourselves face to face with a perpendicular barrier of massive stalactites. Taking the opening next the wall we reach presently upon our left the Tower of Babel, a fanciful

name for an exceedingly broad and massive stalagmite, whose surface, fluted with successive courses of minor stalactites, suggests the idea of its having some twenty odd stories.

We now have reached the top of a flight of steps descending into Giants' Hall proper. With the help of two electric lights we enjoy a magnificent view of a chasm which, lofty and wide, and flanked with massive formations of every kind, is beset with gigantic blocks of limestone fallen from the ceiling, and crowded with stalagmites which tower above our heads. Everything is of gigantic proportions. Folds of stone drapery, called the Chimes, forty feet long, vibrate for many seconds to the light touch of the guide. On our immediate right is Empress Column, a stalagmite rich in flutings and dark about its lower part, but growing white as it rises until its summit is clothed with indescribable beauty. It is *perfectly* white—luminous, one would say. Nothing could be better taken as the type of absolute purity.

The Sultana Column, near by on the left, is of symmetrical shape but discolored by age. An adjacent column suggests an Indian Squaw, and another Chanticleer. A rugged mass of stone further on, exhibiting a “gaudy leonine beauty,” is the Lion of Luray. Winding our way through a labyrinth of spires, minarets, formations infinite in number and kind, we come at length to the base of the Double Column*—two huge brown masses, the one a stalactite hanging about fifty feet from the ceiling to within a few feet of the floor; the other a stalagmite rising by its side nearly as far; both of immense size and symmetrical in shape. Within a few feet are a number of sonorous draperies of great length. These when gently struck by the guide with his finger give out notes of charming sweetness:—

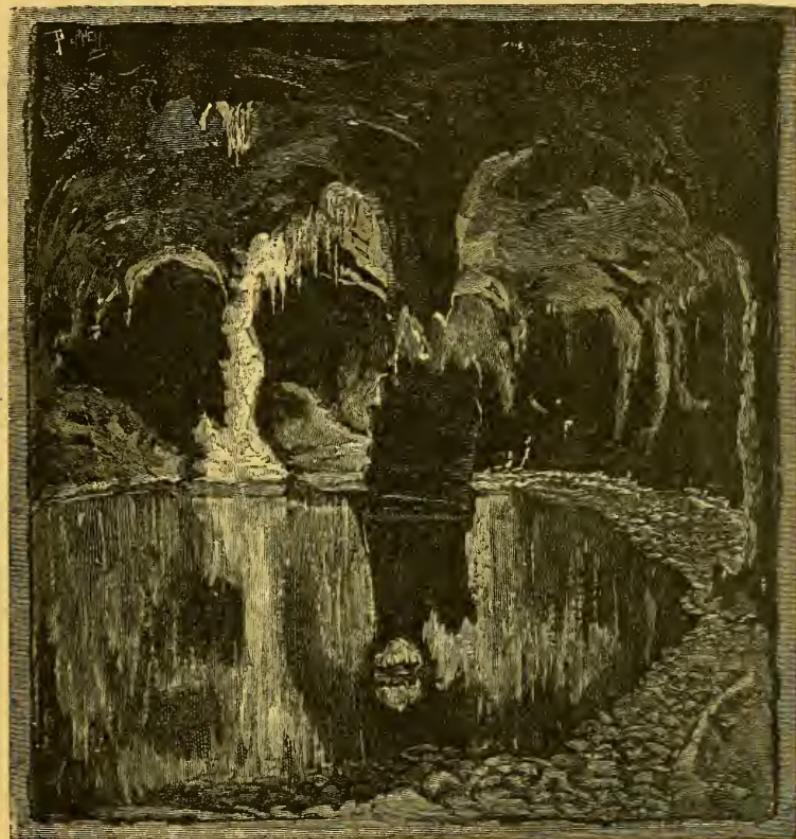
“Like an *Æolian* harp that wakes
No certain air, but overtakes
Far thought with music that it makes.”

Proceeding along the plank walk through the Narrow Passage, we have on our right the Frozen Cascade, succeeded further on by the Chalcedony Cascade. Opposite the latter upon the left

* Recently dedicated, by the Reading Society of Natural Sciences, under the name “Henry-Baird Column,” to the late Prof. Joseph Henry, the first Secretary, and Prof. Spencer F. Baird, the present Secretary, of the Smithsonian Institution at Washington.

is Mahomet's Coffin, an immense boulder of limestone suspended in mid-air.

THE BALL ROOM.—We emerge at length into a large open space, nearly circular and magnificently furnished with all that is striking and attractive in cave scenery. Its size and shape justify the name which has been given it. It is floored with plank and provided with benches. A bank of stone on one side



BROADDUS LAKE, OR LAKE LEE.

supplies a support for successive ranges of seats. Formerly on "Illumination Days," when some five thousand candles were lighted throughout the cave, the lads and lasses of the adjacent counties celebrated the event by assembling here for a dance. The Luray Band with their instruments provided the necessary music. As may be imagined, the effect was both

striking and queer. The brilliant lights set off the Ball Room to its best advantage, and the music echoed loudly back and forth through Giants' Hall. This apartment, the lowest in the cave, is two hundred and sixty feet beneath the surface.

The objects of interest here are the Tombs of the Martyrs, the Vault, the Lady's Riding Whip, the Idol, the Conical Shot, and the fair maiden Cinderella. Two sets of rooms adjoin. The one contains the much admired Cascade Spring, a series of pools in tiers, the lower ones formed and fed by the outflow of those above, and all lined with calcite crystals. Prettily colored and sonorous draperies of great length hang near by. Another set of rooms, including Collins' Grotto,* is reached by mounting stairs opposite the entrance to the Ball Room. Collins' Grotto is rich in formations of rare and curious shapes, among which the Dragon is specially interesting. An attraction connected with it is the Snow-ball Spring. On our return from the Grotto we stop to examine the Bird's Nest, a cavity in the rock containing three beautiful white eggs—cave pearls—formed and forming from drops of lime-laden water falling from the ceiling. Opposite to Cascade Spring is an opening leading up to Pluto's Chasm.

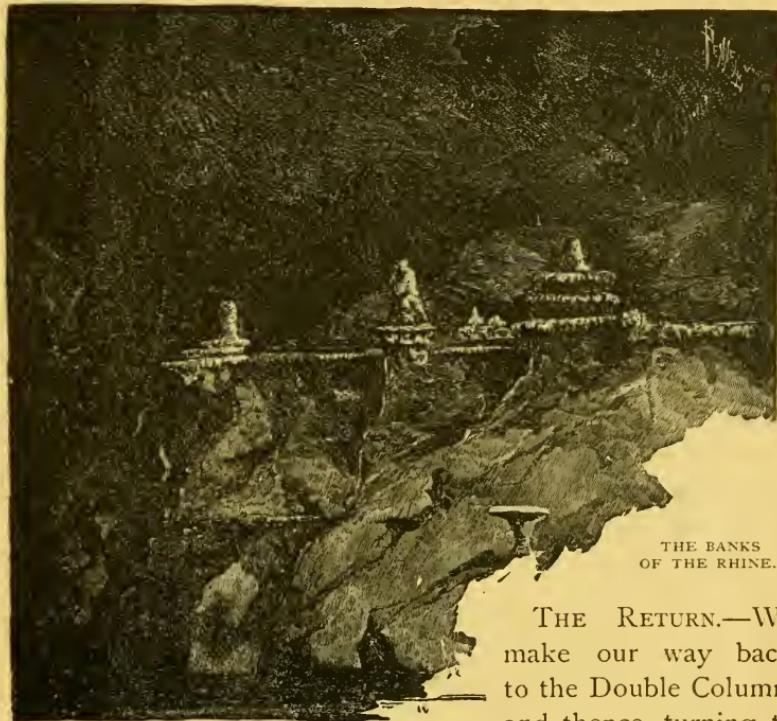
CAMPBELL'S HALL.—Returning to the entrance to the Ball Room, we plunge into a dark ravine upon the right, and mounting two long flights of steps find ourselves on the second story of the cave, and at the opening into Campbell's Hall. It is an apartment of irregular shape, about one hundred and fifty feet in diameter and thirty-five feet high, remarkable for the variety of color, and fine state of preservation of its formations. Some are of pearly whiteness, others are red, bright yellow, gray, bluish, and jetty black. It is worthy of remark that the Cascade Spring derives its waters from this place.

Specially to be noted is the Fountain in Tiers or Coral Spring. Imagine upon the summit of a bank of stone a large shallow basin filled with pellucid water. Its outflow is received into six other smaller basins arranged in graceful curves along the slope below. The sides and bottoms of all are covered with calcite crystals of an amber color. In the larger basin stands a brown

* Named after Jerome J. Collins, one of the officers of the "Jeannette," who spent ten days exploring the cave.

column, three feet high, whose base is beautifully broadened with a wreath of crystals as far up as the water reaches. The Scale Column, or Mermaid, is sheathed in crystals resembling scales. Campbell's Hall answers to our highest conception of the ornamental in cave scenery, since here, to a remarkable degree, the formations retain their original beauty.

On making our exit we discover over our heads two folds of stonycloth, of light color, translucent and striped finely with opaque bands of snowy whiteness—the prettiest in the cave.



THE BANKS
OF THE RHINE.

THE RETURN.—We make our way back to the Double Column, and thence, turning to the left, up a flight of steps into the Hall of Eblis, a wide apartment having vistas opening out in many directions. Here are the Comet Column, the Camel's Head, the Handkerchief, and the Wet Blanket—the latter a marvelous piece of imitative stone. Here, too, is the former Bridal Chamber, which has been consecrated by an actual marriage. The Hollow Column, not far distant, is a huge stalactite through the axis of which a streamlet of fresh surface water has eaten its way from end to

end, opening up a shaft by which we may ascend forty feet into a gallery over the rooms we have been exploring.

Proserpine's Column is now our objective point. But before we go we find our way to the platform beneath the electric light to get another view of the Empress Column. It is truly superb, and its name is but in keeping with its air of imperial loveliness.

We have seen enough for one day. We are exhausted mentally by the multitude of our new impressions, and by the lively emotions to which they have given rise. Deferring the wonders yet remaining to another time we hurry back towards Entrance Hall, and mounting the stairway into the purplish light of day realize at length that we have enormous appetites and are perhaps a trifle tired by hours of cave travel. We bethink us of the gastronomic resources of the Luray Inn.

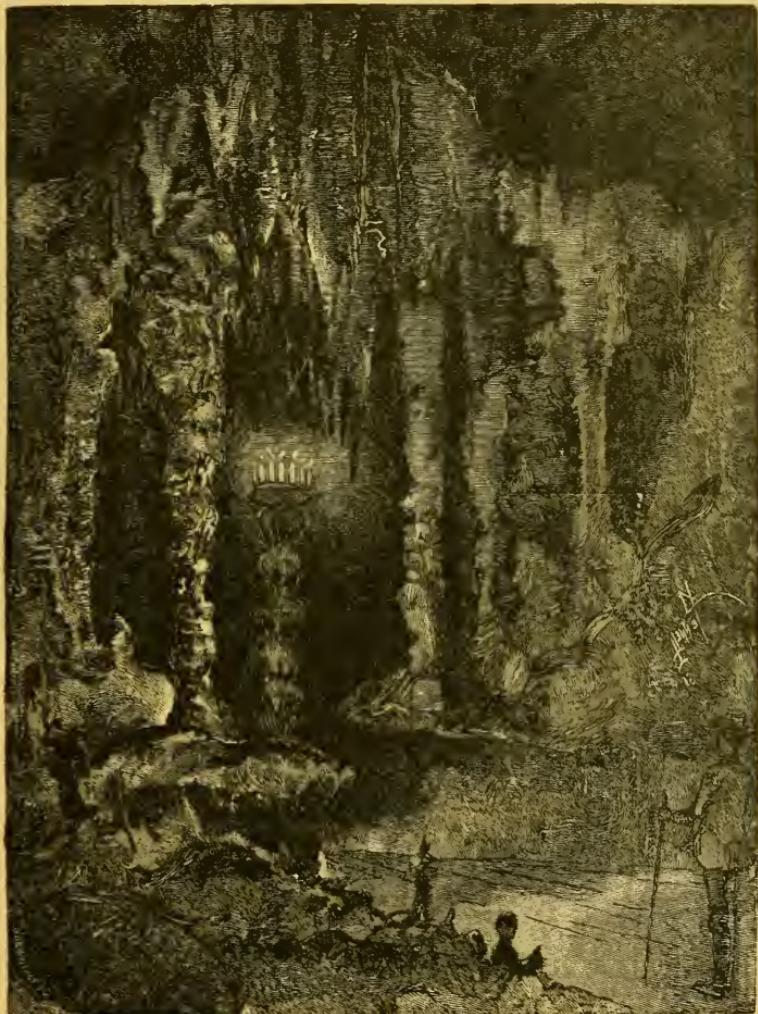
From the door of the Cave House a fine view of the beautiful Luray Valley is obtained. Fronting us towards the east is the Blue Ridge, blue as the heavens, with its various outlying spurs, one of which partly conceals Thornton's Gap. On the right in charming profile the same mountain curves towards us, folding in its embrace the hills and dales, broad meadows, orchards and fertile fields of the upper Hawk's Bill. Mary's Rock is a famous land-mark in full view. On our left, towards Front Royal, the azure-tinted peaks of the Massanutten are seen to approach the line of the Blue Ridge. Famous for many bloody combats during the war, the scene is now, however, one of peace, and recalls the Laureate's vision—

The island valley of Avilion ;
Where falls not hail, or rain, or any snow,
Nor ever wind blows loudly ; but it lies
Deep-meadowed, happy, fair with orchard lawns,
And bowery hollows crown'd with summer sea.

OTHER PARTS OF THE CAVE.

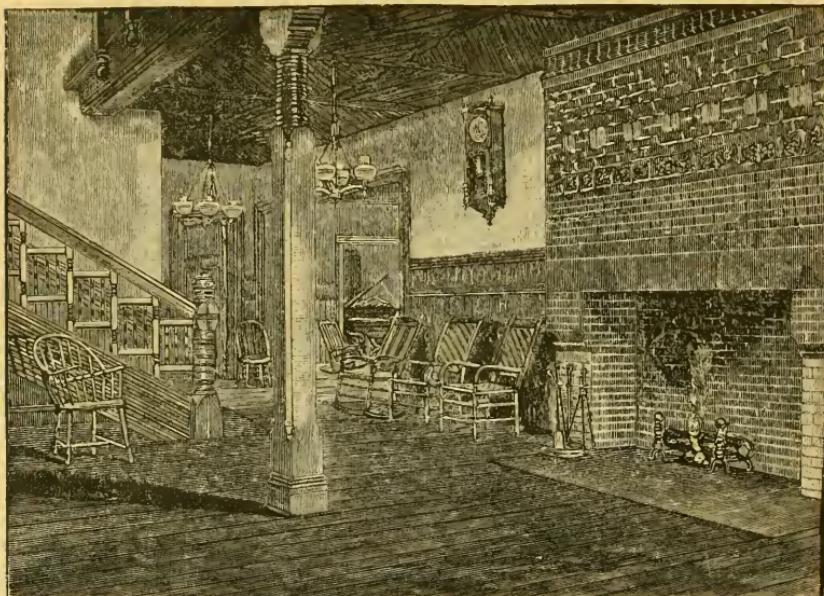
"Silence is vocal if we listen well."

Large areas, embracing some of the finest parts of the cave, are not yet open to the public. The route described in my last chapter takes in those localities which were first made easy of access to the general visitor. There remain for the undaunted explorer certain regions for which special preparation



A CORNER OF THE BALL ROOM.

is necessary: miles * of clambering up the sides of chasms, along slippery ledges, swinging from pillar to pillar at great risk of losing one's hold on treacherous stalagmites—to give a name to some as yet unchristened gulch; ridges to straddle with yawning gulfs on either side, and embarrassing sharp-pointed stalactites overhead; descents to be made, with labor and peril, by the help of decaying draperies, to reach floors deep with "boot-jack mud," or forming, perhaps, a thin crust over some bottomless pit; crawling to be done through passages too small for one's person, in mingled mud and water,—



LURAY INN—INTERIOR.

such are the toils of the explorer. He is beguiled to his task, however, by the novel beauties and terrors which present themselves at every turn. A pleasant excitement takes possession of him, and labor and lapse of time are forgotten.

Three routes requiring several hours each remain: STEBBINS' AVENUE, STONEWALL AVENUE, and to the ROUND ROOM, or EREBUS.

STEBBINS' AVENUE.—Turning to the left from the Entrance

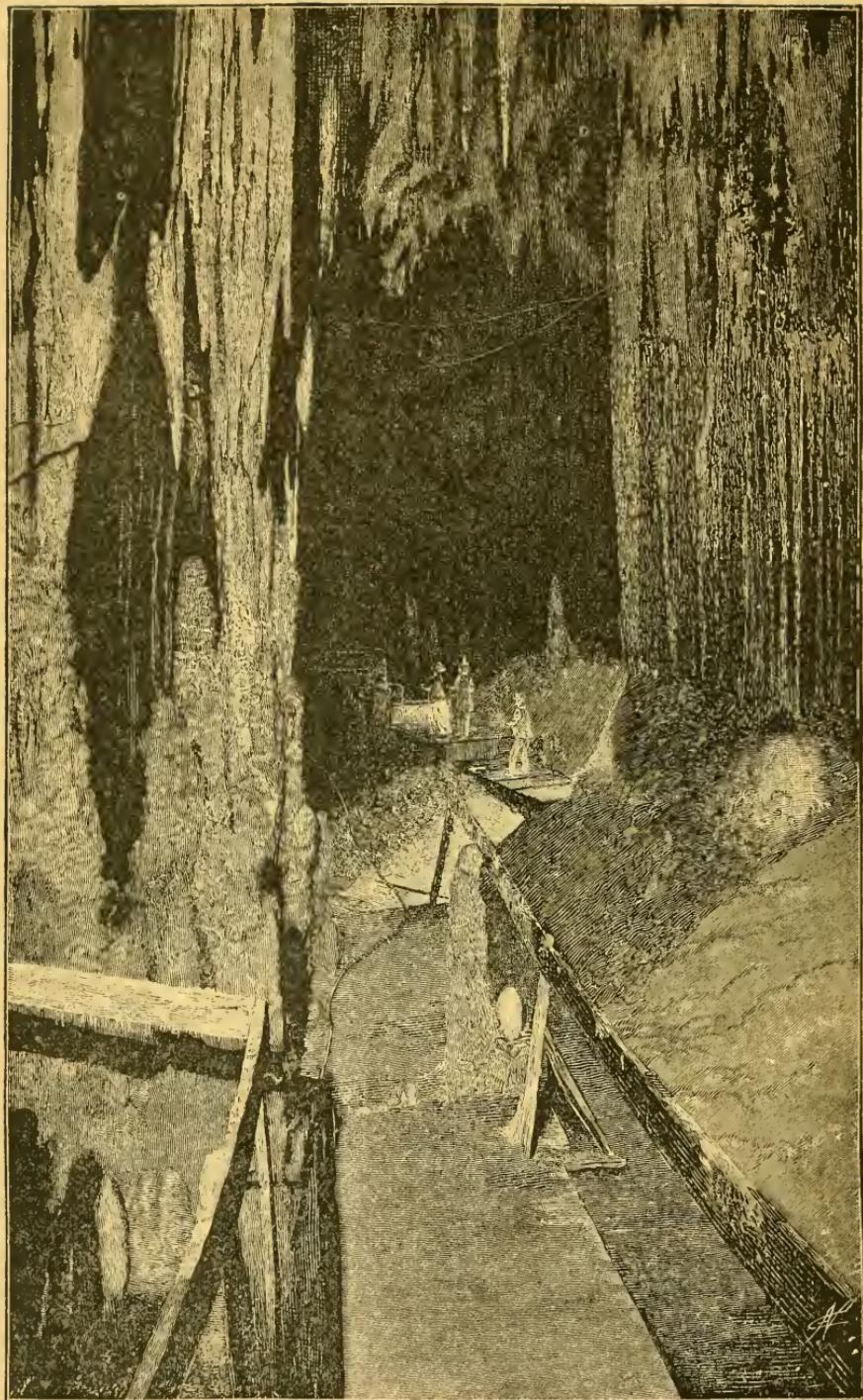
* To visit all the rooms now open in the cave requires a journey of over three miles. The entire extent is reckoned at something less than five miles.

Hall, we enter Stebbins' avenue, so called from the name of one of the gentlemen to whom the discovery of the cave is due. It is a series of spaces of low pitch and irregular shape opening one into another; all with floors more or less dry because the water passes away by the lower level of the rooms which are found to exist beneath. The avenue presently divides into two, of which the right one leads to Crystal Lake, the left to Pisa and the rooms beyond.

We recognize first the banded stalagmite called Pyramid of Cakes. It is surmounted by the Pine Apple. Near by is a bank of stone having a variety of colors, but most remarkable for a jetty black, supposed to be due to manganese dioxide. Near this is the Chinese Idol, on its pedestal of stone. This part of our way rings beneath our tread with a hollow sound, and the guide removes a slab which conceals the entrance to a region beneath known as Tartarus.

The Blacksmith's Shop with its fire-place and two stalagmitic anvils comes next. In an adjoining room is the Cannon Ball, a 24-pounder resting at the bottom of a limpid pool. Further on is the Grape Spring encompassed with grapes, or botryoids, of all shades from black to white, small and pretty. A mossy growth of calcite lines the bottom of the Spring. Upon the right we enter a recently-discovered room one hundred and fifty feet long, fifty feet broad, and twelve feet high. It is called Dr. Hawes' Room, in honor of Dr. George W. Hawes, of the National Museum at Washington, in whose honor a memorial tablet was placed upon the column by the Smithsonian Institution.

Crystal Lake is forty feet long by eight deep. We shall not venture on the narrow plank upon which the guide would tempt us to cross. We turn back, and near the Cannon Ball enter the narrow opening leading to Pisa. After crawling on our hands and knees for some distance we reach a large open space, the bottom of which is the bed of a lake. Its level is sunken about five feet—its bottom having fallen out, so to speak. Its sinking seems to have been expedited by the weight of an immense fluted stalactite some twenty-five feet high by twelve in diameter which has broken from the ceiling, crushed the floor, and brought down with it many of the adjacent columns. It is a veritable Leaning Tower. Beyond are Jacob's Well and the



CAMPBELL'S HALL.

curious Bayonet Well, which have for their bottom the new level to which the Leaning Tower has fallen. The Bayonet is a perpendicular strip of drapery rising from the edge of the Well, having been left behind at the sinking of the stalagmite to which it was attached.

There are many fine rooms in this quarter. The locality is specially rich in helictites, the curious lateral and upward growths alluded to before. They writhe upon the surface of their support like worms, in complicated clusters, perfectly regardless of the law of gravitation.

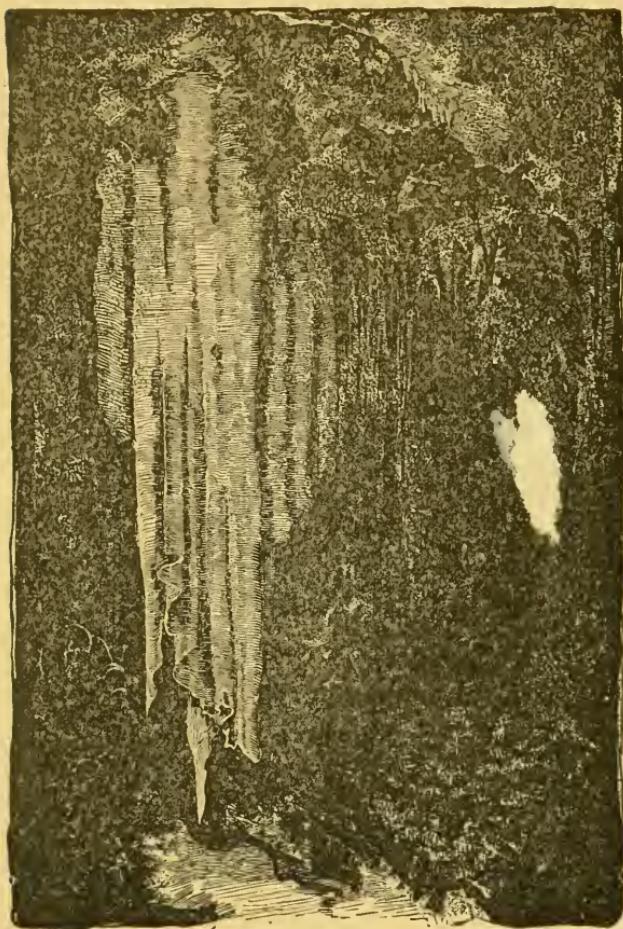
STONEWALL AVENUE is a continuation of Entrance Avenue. Starting from the Skeleton we mount a stairway, and upon the higher level find upon our left a room called Paradise, containing a pavilion ornamented with delicate lattice work of snow-white stone. It is called the Gnome's Pavilion. Further on upon the right we enter a passage conducting us into an apartment which from its connecting with the Imperial Spring is known as the Empress' Chamber. The splendid view under the electric light from this room across the Imperial Spring with its myriad of encompassing columns, and beyond to the rugged features of Stonewall Avenue, must not be missed. Returning to the main route we rest for a moment to inspect the trailing tufts of a white, furry fungus of great beauty, hanging here, as elsewhere in the cave, from the plank of which the stairways and platforms are constructed. It doubtless belongs to the upper world, being brought in with the plank, but as it seems to find here the environment most favorable to its growth it should be christened Cave Ermine. At a distance its pendent masses are scarcely to be distinguished from stalactites.

Continuing our explorations we come next to the Twins, three lakes of considerable depth encompassed by a wild forest of columnar stone. The clustering together of many stalactitic pillars forcibly recalls the multiplex columns of which the mediæval artist was so fond, making it easy to believe that the Gothic architect derived his idea from the growths of caves rather than those of the forest.

Beyond the lakes turning off to the right we pass beneath the Canopy, a circular rock jutting from the wall; bare as to its flat under surface, but ornamented about its circumference with a

fringe of drapery. Going further we enter the engine room, containing the locomotive and curious helictites of unusual size resembling potatoes. The formations here are of a strikingly eccentric character. Turning back to the main route we continue for some distance until we reach the point at which the guide tells us it is proposed to open a new exit from the cave to the outer world.

Near Dr. Miller's Room* we find large masses of calcite broken away with dynamite cartridges in an effort to create a wider opening. Some of the huge blocks thus dislodged are remarkable for fineness of texture. "On being cut into slabs and polished they are quite equal to the celebrated Mexican onyx, from which they differ mainly



THE WET BLANKET.

in vividness of color." Sections of stalagmites show great variety and richness of coloring. Some of these have been polished and are sold to visitors as mementoes of the caverns. To

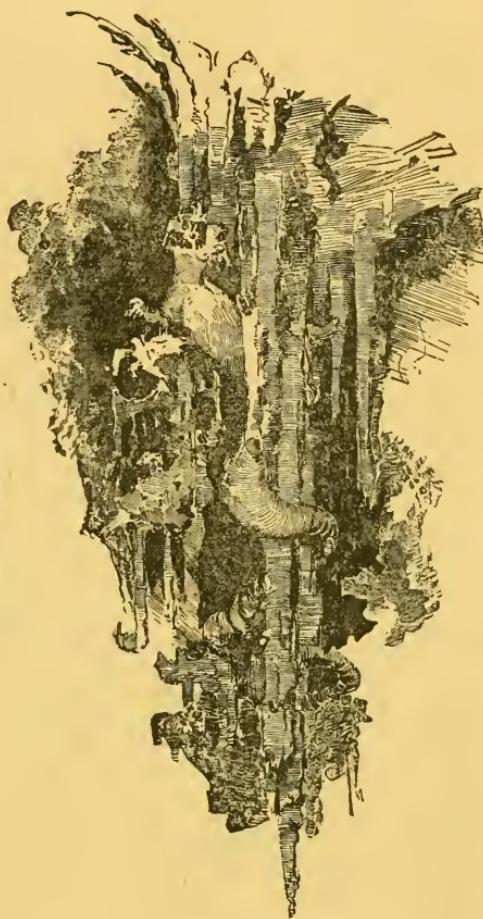
* Named after the late Dr. Miller of Luray, a great admirer of the cave, and an exemplary citizen of Page county.

the inexperienced eye they resemble sections of petrified trees, and would-be purchasers have been known to ask for those "specimens which have the bark on."

Last of all we reach the entrance of a large dome-shaped apartment to which the appropriate name of Chaos has been given.

EREBUS.—Clambering over a huge pile of ruins in Giants' Hall, and mounting to a considerable height by means of a ladder, we enter upon the route to Erebus. On our way we find many curious formations to admire. Among these may be mentioned The Toys, a cluster of upward and lateral helictitic growths gathered about the capital of a stalactitic column. Turning about we find the way from this point to Erebus arduous and difficult. It grows smaller and smaller until we must needs creep, at full length, some twenty feet through a narrow, wet, and muddy passage, which is but a crack in the blue limestone. It is impossible to avoid the stalactites besetting the way, and the dripping water fills the eyes with the tears appropriate to so uncomfortable a situation. Our clothing is reduced to a miserable plight.

We are rewarded upon our emergence into Crystal Room by the discovery of numerous hexagonal crystals, transparent, of large size, and beautiful. They project from the ceiling, in clus-



AN "ARRANGEMENT" IN STONE.

ters commonly, and are found only where the ceiling is the original blue limestone, within which, in cavities, they seem to have been formed at some remote period. They are two, three and four inches in length, and from one to twelve-sixteenths of an inch in thickness.

We rest at last in Erebus, a room large, dark and dismal, having the shape of the figure 8. At the point corresponding with the middle of the figure, a large and symmetrical column of brownish-white stone rises from floor to ceiling, a distance of about seventy feet. It is the only column of any size in the room. Along the side runs a sort of gallery containing fine specimens illustrating the processes of "vegetal growth." Entering this gallery we find it filled with decaying forms, and peering thence into the central abyss—

The dank tarn of Auber
The ghoul-haunted woodland of Weir

of Poe's fancy—we see lying there many objects whose shape is undistinguishable in the darkness.

CONCLUSION.

It is a task of recognized difficulty to describe the indescribable. This difficulty is enhanced, if possible, in the case of cave scenery by the fact that the impressions it leaves upon the mind of the beholder differ not so much in degree as in kind from those of his past experience. A new order of sensations, ideas and emotions demand, of course, a new vocabulary. No straining or expansion of a terminology derived from the upper world will enable it to describe adequately the wonderful phenomena presented in the realm of Stalacta. The visitor who attempts description must content himself therefore with seeking to impart his enthusiasm, without hoping to trace fully its causes. This only will he profess to understand clearly—that he has enjoyed the rare felicity of experiencing an altogether novel sensation.

The Persian monarch's desire—a new pleasure—is secured at length to the world in the Luray Cave.

The Luray Cave and Hotel Company.

NOTICE TO VISITORS.

To prevent confusion or misunderstanding, and to guard against imposition, visitors are requested to pay particular attention to the following regulations :—

Admission to the Caverns.

Visitors are admitted to the Caverns from 7 A. M. till 6 P. M., during which time no charge is made for the electric light. After 6 P. M. a special charge is made for admission, and the electric light will not run unless by special arrangement.

Admission to the Caverns. { From 7 A. M. till 6 P. M., \$1.00, including electric light.
After 6 P. M., \$1.50 without electric light.

A special charge will be made as follows for electric light, if desired by visitors after 6 P. M. :—

For ONE visitor, . . .	\$2.00	In addition to the Night Rate of Admission.
" TWO visitors (each),	1.00	
" THREE "	75 Cents.	
" FOUR "	50 "	
" FIVE "	25 "	
" SIX or MORE visitors,	NO EXTRA CHARGE will be made.	

N. B.—A small charge is made at the Cave-house for taking care of articles of baggage.

Cave Photographs, Specimens, Guide Books, &c., may be purchased at fixed prices. No other charges than those specified are permitted.

Ordinary clothing should be worn in the Caverns. Ladies should wear overshoes. No special changes of dress are needed, and extra wraps are superfluous—the Cave temperature being 56° F. at all seasons. Canes, sticks, &c., are not allowed in the Caverns. Smoking is prohibited.

Visitors are urgently requested to aid in protecting the formations in the Caverns from defacement and mutilation.

Under the laws of Virginia, persons detected in breaking or defacing the formations may be arrested and fined.

Cave Hacks.

Authorized Hacks make regular trips to the Caverns. Special trips will be made from the Railroad Station and from the Inn when required. Railroad coupons for hack transportation will be honored on any trip of authorized hacks.

RATES PER ROUND TRIP,	$\left\{ \begin{array}{l} \text{35 CENTS per passenger on REGULAR trips from the Railroad Station.} \\ \text{50 CENTS per passenger on SPECIAL trips from the Inn or Railroad Station.} \end{array} \right.$
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N. B.—Visitors are particularly requested to retain the "RETURN" hack coupon until they return from the Caverns, and not to surrender it on the "GOING" trip to the Caverns.

CAVERNS OF LURAY,

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E. J. ARMSTRONG,

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